ETHOS: A Translation of Bio-digestion of Human Waste across Continents

Anirban Mandal

Advisor: Candida Crasto

Introduction

Biodigestion, an anaerobic process, can be used for eco-friendly disposal of human and animal waste. Some of the benefits are:

- Removal of odor
- Safe disposal of waste
- Low cost
- Easy to construct/ maintain
- Methane generation
- High quality fertilizer

Human waste is a very potent vector for viral and bacterial disease. About 20 % of all such diseases (like hepatitis, hookworm, cholera, filariasis, etc., to name a few) is water related.

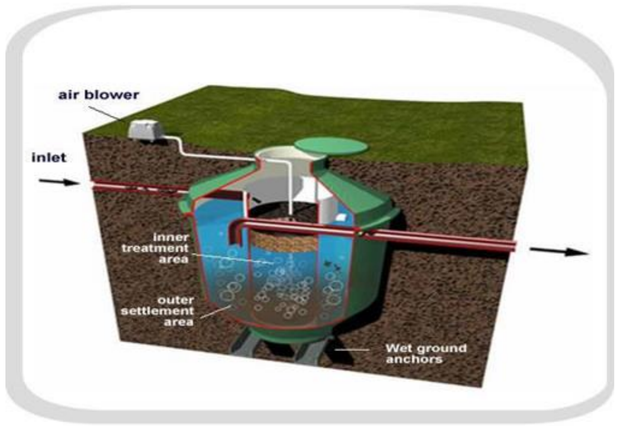

Figure 1: A common Bio-digester

Objective

Major objectives of this work are to:

(a) Evaluate various technologies for best results in rural Nicaragua.

(b) Selection and fabrication of an appropriate technology for individual household.

(c) Study the feasibility of introducing a community based toilet system .

(d) Use the results from the appropriate technology for education purposes globally.

Methodology (Factors)

Bio-digesters are the fermentation containers for the human waste and are made from various affordable materials. The factors affecting the rate of biodigestion are:

- Surface Area
- pH
- High Temperature
- High Pressure
- Type of Waste
- Shape of the Chamber

Diagrammatic Representation

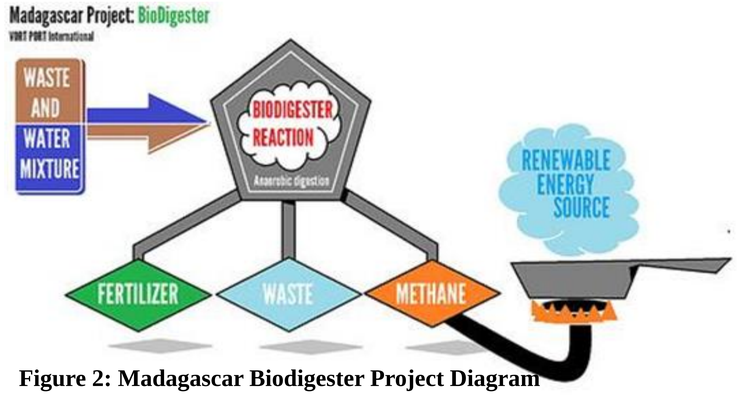

Figure 2: Madagascar Biodigester Project Diagram

Result Expected

Anaerobic digestion can be used for waste management, especially human waste in the developing countries.

Effluent becomes pathogen-free and re-usable which are eco-friendly and economical.

Emitted gas (methane) may be utilized as energy source for household purposes

Bibliography

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(More References would be shared, if interested)

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